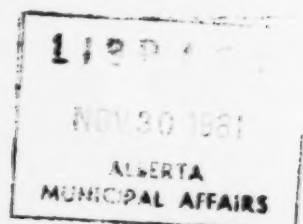


A METHODOLOGICAL PROPOSAL FOR THE
STUDY OF EMPLOYMENT PROSPECTS IN THE COAL BRANCH

Research and Development Branch
Alberta Municipal Affairs

May 1981



A. INTRODUCTION

This proposal is developed in response to a request from the Manager, Regional Planning Section, Planning Services Division to study the employment impacts of planned resource projects in the Coal Branch. The chief purpose of the proposed study will be to provide information to the policy makers to assist them in the planning process. For example the Planning Branch, Department of Municipal Affairs needs information, on the amount and timing of job creation by the resource sectors to assist them in the daily planning of the ID 14 region. The Department of Tourism and Small Business, should be able to use our results to provide advisory service to prospective investors. Research and Development Branch is therefore undertaking this project as a joint collateral responsibility with the Regional Planning Section.

In order to provide a systematic explanation of present and future resource exploitation in the sub-region it is necessary to have a theory of regional growth that emphasises resource exploitation. It is therefore useful to review the state of the art on regional growth theories. For this purpose the present proposal critically reviews some principal regional growth theories. Since the availability of data is also essential to the statistical analysis, the present document lists the major sources of available data which are potentially useful for empirical work. Finally the proposal outlines the strategy for developing the study.

The Study area lies in the eastern slopes of the Rocky Mountains, between

Alberta's highway 16 and the northern boundry of the Rocky Mountain Forest Reserve. The western extent of the study area is defined by the Jasper National Park boundry. To the east, the study area includes Range 17, west of the 5th.

B. REVIEW OF EXISTING REGIONAL GROWTH THEORIES

A Survey of the literature on regional growth theories shows that there is no universally accepted methodology for explaining regional growth. However a number of approaches are commonly used by researchers. These approaches vary in level of methodological sophistication and data requirements. In addition each approach has its strength and limitations. Thus before deciding on which methodolgy to adopt, it is important to understand the methodolgies and their usefulness. (A brief summary is provided in Appendix A).

C. DATA AVAILABILITY

The availability of suitable data will to a great extent dictate the degree of theoretical and empirical sophistication of the study.

A list of the principal data source is provided in Appendix B. These data sources will be supplemented whenever necessary by surveys and interviews.

STRATEGY FOR THE PROPOSED STUDY

Phase 1 - Study Design

Following the approval of the present Proposal we shall, meet with you to have a general discussion about the project. At that time we would like to touch on such issues as: (a) revision to the study proposal (b) data bases (c) provincial policies and (d) contacts.

Phase 2 - Literature Review

Task 2.1

We believe that it is necessary to update and expand our understanding of the principal sectoral development factors (e.g. market volume, the cost of capital, domestic oil price etc), in order to generate an independent view of the principal development factors.

Task 2.2.

The results from these findings will be documented in a survey paper. This paper will touch on the question of data sources and their limitations. We would expect to have a session with you (Regional Planning) to discuss our findings.

Phase 3 - Survey Groups and Development Factors

Task 3.1

The first task in Phase 3 would be devoted to designing a questionnaire. It will be used to survey government departments, agencies and organizations in the coal, gas, forestry and tourism/recreation sectors.

Task 3.2

We would identify the most appropriate organizations in the coal, gas, forestry and tourism/recreation sectors for surveying. These would include government agencies active in the area (e.g. Energy Resources Conservation Board, Environment Council of Alberta), some interested companies and such interested groups as the Coal Association of Canada. We will forward the completed list and questionnaire for your approval and comments.

Task 3.3.

We would then contact the senior executives of industry and government to brief them on the nature and objective of the study and to solicit their cooperation:

i.e. supplying information on existing and planned projects.

Task 3.4

Since the economy of the Coal Branch sub-region is subject to external pressures, we feel that it is necessary to fully acquaint ourselves, with the provincial economy. A review of the current estimates and short and long term forecasts for the provincial economy will be made; paying very close attention to the actual and estimated and projected performance of the resource sectors. These estimates and projections will be obtained from various government departments and agencies.

Task 3.5

We will submit a report on the timing and amount of development to be expected in each sector. After an elapsed time of ten working days, we will meet with you to listen to your comments and discuss the report.

Phase 4 - Confirmation of Planned Development

Task 4.1

We would re-establish contact with all firms and organizations that were previously surveyed. ~~ed~~. The objective is to have an in-depth discussion with them so as to: (1) re-affirm their responses to our questionnaires and (2) discuss long range prospects of their firms and industries.

Task 4.2

We will summarise the response to the survey and prepare an accompanying analysis for your review.

Phase 5 - Final Report

Task 5.1

The final report may have the following outline:

I. Introduction

A Preface

B Summary of Findings

C Recommendations for Future Study

II Terms of Reference

A Objectives

B Methodology

III The Study Region

A Introduction

B History

C Bio-physical Characteristics and Geological

D Existing Land Use

IV Findings

A The Coal Sector

B The Forestry Sector

C The Natural Gas Sector

D The Tourism and Recreation Sector

Task 5.2

We will submit a draft of the final report for your comments. After a period of ten working days we will meet with you to discuss the report and listen to your criticisms.

Task 5.3

Following your appraisal we will make the necessary changes and submit the final report.

E. RESOURCES

The study will be undertaken by Research and Development staff. Some outside consultation will likely be required; however, it is anticipated that this will be of an informal nature, primarily for purposes of guidance and direction.

Mr. W.C. Gillespie, will be the project manager. He will provide advice and assistance as required. Mr. Patrick Walters will be the principal researcher.

F. ACTIVITY LISTING

<u>Activity</u>	Man-Days
1. Gathering of Baseline data (from consultant studies and decisions makers)	40
2. Literature review	15

3.	Analysis of data	20
4.	In-house consultation	4
5.	Consultation with Regional Planning	3
6.	Preparation of Preliminary Reports	20
7.	Preparation of Final-Report	<u>20</u>

Appendix A

The Choice of a Growth Theory

The reason for incorporating a Theory of Growth into our analysis is to provide a framework within which we can study the region's problems and make recommendations for their solution. This section therefore provides a review of some theories and establish the criteria for selecting an appropriate theory to analyse the economy.

A review of the literature on regional growth theories will show that there are several theories¹. These can be broadly defined into two groups: (a) mathematical and (b) non-mathematical². The work by Solow (1956), Harrod (1939) and Domar (1946) are examples of the first³. The economy is viewed as a highly aggregated market place and seeks to explain the trend rates in the aggregates. The second group can be further divided into two sub-groups: (1) stages of growth and (2) Export Base⁴. The work of Colin Clark (1940) and W.W. Rostow (1956) are examples of theories of the stages of growth. Briefly the theory shows that as per capita income grows there is a general decline in the proportion of the labor force engaged in agriculture. Such a decline is first accompanied by a growth in the proportion of the labor force engaged in secondary industries, primarily manufacturing and mining. Later, tertiary industries or service industries expand and increase their share of the total labor force. Finally the work of H.A. Innis (1920, 1940), M.W.

Walkins (1963) and D.C. North (1944,1961) are examples of the Staple Theory⁵. North describes the principal components of the theory as: "The timing and pace of an economy's development have been determined by: (1) the success of its export sector and (2) the characteristics of the export industry and the disposition of the income received from the export sector⁶".

The theory that is adapted must be able to meet the following criteria⁷:

(a) it is capable of looking at the economy in terms of regions

(b) or it can be modified to take regional factors into account

and

(c) it should be able to explain the economic history of the area

and to serve as a guide for future development.

The mathematical models have to be excluded since they are highly abstract and lack geographic content. It is therefore not worthwhile to adapt these models to a regional situation.

The stages of growth is unable to explain the economic history of North America in general and the Coal Branch in particular. D.C. North (1955) observed that:

When the sequence of stages is placed against the economic history of regions in America, two basic objections arise.

(1) These stages bear little resemblance to the actual development of regions. Moreover they fail to provide any insights into the causes of growth and change. A theory of regional economic growth should clearly focus on the critical factors that implement or impede development. (2) Furthermore if we want a normative model of how regions should grow, in order to analyze the causes of arrested development or relative decay then the sequence of stages is of little use

This is therefore not suited for our purposes.

The Staple Theory of growth has been used successfully to explain Canada's economic history. N.H. Lithwick and Gilles Paquet (1968) enlisted it to explain regional economic growth and interaction between city and region, thus putting the staple theory in a spatial setting⁸. Watkins (1963) believes that it is an important analytical tool and he recommends that it should be used since:

The closeness of the link between the staple approach and Canadian historical research makes it unlikely that the application of a more explicit theory will add much to our understanding of Canadian economic development.

He also observed that, "The staple approach to the study of economic history is primarily a Canadian innovation; indeed it is Canada's most distinctive contribution to political economy". Enthusiasm for the staple theory has not been limited to Canadians, the American D. C. North is one of the most ardent supporters of this theory. He states that, "An analysis of the export of staples of the Canadian economy became the basis for understanding the character of that country's economic development".

The Staple Theory

The theory is known by several names: Basic-Non Basic, Export Base and the Staple Theory of Growth. For the purpose of our study the term Staple Theory will be used. D.C. North defines a staple as an exportable commodity. The Staple Theory is not a general theory of economic growth, since it is applicable to a new country or empty land situation. For the theory to be relevant, the following conditions must hold:

- (a) the region must be free from the strictures of population pressures,
- (b) the region must have grown up within a framework of capitalist institutions responding to profit maximising opportunities in which factors of production have been relatively mobile and
- (c) the region must be free from inhibiting traditions.

The Staple Theory is not a deterministic theory since it does not outline a series of well defined stages through which an economy must pass in order to attain maturity. Rather the basic assumption is that there must be a successful export sector. This "... sets in motions a cumulative multiplier mechanism which expresses itself in growth of the other sectors of the economy and a gernal increase in prosperity". The growth

that is generated by the export sector may eventually cause other sectors to develop to the point where the export sector is no longer the leading sector.

In order to give the theory empirical content, a distinction must be made between export industries and residentiary industries. Residentiary industries produce for the domestic market. Statistically these industries can be defined by the use of Location Quotients. These indicate whether an industry is more concentrated in a region or subregion than it is in the province as a whole. Industries which are more concentrated than average are assumed to export from the region a portion of their output and thus earning for the region a money or a trade surplus. Export industries therefore, have Location Quotients significantly above 1.00. The importance of export industries stems from the fact that they can contribute to absolute and per-capita income. On the other hand residentiary industries are totally dependent on export industries via demand for consumer goods, producer goods and services.

Economic Development is viewed as a diversification process, which begins in the export sector and through the process of linkages spreads to the rest of the economy. These linkages are: (1) backward (2) forward and (3) final demand. The first is a measure of the inducement to invest in the home production of inputs for the export sector. Diversification will be greatest where the input requirements involve resources and technologies which permit home production. The second, is a measure of

the inducement to invest in industries using the output of the export industry as an input. The third is a measure of the inducement to invest in domestic industries producing consumer goods for workers in the export sector. These linkage are usually weakened by leakages such as the export of profits, migratory labour and imports of producer and consumer goods.

The diversification process is influenced by the state of the technology in the export sector. Baldwin has shown that technology affects income distribution which in turn affects industrialisation. A skewed income distribution is looked upon as an impediment to growth where an equitable distribution acts as a stimulant. Mining and plantation agriculture are regarded as producing an inequitable distribution thus:

The more equitable distribution of income which arises as the economy develops its export production is more favourable for induced development of domestic industry. A smaller proportion of the national budget is devoted to food expenditure. And the production of this food is undertaken on efficient, family-size farms.

Moreover the areal distribution of industry plays a vital role in the development process. Agriculture tends to blanket the space economy because of its many small production units, Whereas mining is usually concentrated in a small number of production centres within small local

concentrations. Agriculture therefore produces a network of transportation linkages to serve the entire area. On the other hand mining creates a series of unconnected routes from mine to shipping routes.

Footnotes

1. D.E. Keebel, "Models of Economic Development" in Models in Georgraphy eds R.G. Chorley and Peter Haggett (London: Methuen and Co , 1967) pp 248-256.

W.W. Rostow, "The Take - Off into Self-Sustained Growth", Economic Journal 66 (1956): 25-48.

J.E. Stiglitz and H. Uzawa, Readings in the Modern Theory of Economic Growth, (Cambridge, Mass: The M.I.T. Press 1969).

2. H.Y. WAN, Economic Growth. (New-York: Harcourt Brace Jovanovich, Inc. 1971).

C. Clark, The Conditions of Economic Progress (London, England: Macmillan and Co., 1940_.

3. R.M. Solow, "A Contribution to Theory of Economic Growth", The Quarterly Journal of Economics LXX (February 1956), 65-94. R.F. Harrod, "In Essay in Dynamic Theory", The Economic Journal XLIX (March 1939), 14-33.

E.D. Domar, "Capitla Expansion, Rate of Growth, and Employment", Econometrica, 14 (April 1946), 137-147.

4. Export Base is known in the literature as Basic-Non Basic or Staple Theory.

5. H.A. Innis, The Fur Trade Trade in Canada (New Haven: Yale University Press 1920;

H.A. Innis, The Cod Fishery: The History of an International Economy (New Haven: Yale University Press, 1940).

M.H. Watkins, "A Staple Theory of Economic Growth", The Canadian Journal of Economics and Polictical Science XXIX (May 1963), 141-158.

D.C. North, Location Theory and Regional Economic Growth", Journal of Political Economy, vol 63 (June 1955).

D.C. North, The Economic Growth of the United States, 1790-1860.
(Englewood Cliff, N.J.: Prentice-Hall, 1961).

6. D.C. North, The Economic Growth of the United States 1790-1860, P.1
7. J.M. Gilmour, Spatial Evolution of Manufacturing: Southern Ontario 1851-1891. (Toronto: University of Toronto Press 1972).
8. N.H. Lithwick and G. Paquet, "Urban Growth and Regional Contagion",
in Urban Studies: A Canadian Perspective, (Toronto: Methuen 1968), 19-39.

Appendix B

Alberta Bureau of Statistics

- Census Division Population Projections Alberta 1977-1991
- Population Estimates by Census Divisions
- Alberta Principal Manufacturing Statistics
- Alberta Retail and Service Trade Statistics
- Economic Profile (for Specified Municipality)

Alberta Tourism and Small Business

- Community Survey (for Specified Municipality)

Alberta Municipal Affairs

- Land Development Permits
- Municipal Statistics
- Population List
- Historic Socio-Economic Statistics for various Alberta Cities and Towns

Statistics Canada

- 1971, 1976 Census

Alberta Economic Development

- Index of Manufacturers
- List of Construction Projects as of (particular date)
- Industry and Resources

Alberta Energy and Natural Resources

- Annual Reports

Energy Resources Conservation Board

- Miscellaneous Reports

